



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/583,026

01/26/2007

Igor Syratcev

3750.1001-000

6974

21005

7590

03/24/2008

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

530 VIRGINIA ROAD

P.O. BOX 9133

CONCORD, MA 01742-9133

EXAMINER

LE, TUNG X

ART UNIT

PAPER NUMBER

2821

MAIL DATE

DELIVERY MODE

03/24/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/583,026	Applicant(s) SYRATCHEV, IGOR	
	Examiner TUNG X. LE	Art Unit 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-15 and 31 is/are allowed.
- 6) ☒ Claim(s) 26-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/15/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the Applicant's communication filed on January 26, 2007 and preliminary amendment concurrently filed therewith. In virtue of this preliminary amendment:

- Claim 31 is newly added; and
- Thus, claims 1-31 are currently presented in the instant application.

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on July 18, 2007 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

2. The drawings submitted on June 15, 2006 are accepted.

Claim Objections

3. Claims 26 and 28 are objected to because of the following informalities:

Claim 26, line 4, "said" should be deleted; and

Claim 28, line 2, "claim 1 or" should be deleted.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 26, 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Mishin et al. (U.S. Patent No. 5,811,943).

With respect to claim 26, Mishin discloses in figures 3 and 6-7 a klystron (column 1, lines 18-20) having a wall (figures 6A-7A show a wall shaped as a disc cavity) defining a substantially disc-shaped cavity [132, 134, 136, 138], the wall having one or more apertures [142] for coupling thereto of electron beam energy (figures 6B, 7B), the cavity wall having a substantially circular (figures 6A-7A show a circular of the cavity wall) outer periphery permitting (column 7, lines 49-52) coupling to a substantially annular input wave guide or output wave guide (figure 5, element [110]), wherein the coupling is afforded by a plurality of windows (figures 3B or 10 shows a plurality of windows for beams flowing in) distributed along the external periphery of the disc-shaped cavity (figures 6-7).

With respect to claim 28, Mishin discloses in figures 6-7 that the klystron further comprises plural sets of beams [beams pass through the tube 144], and each set cuts each cavity at a respective aperture [142].

With respect to claim 29, Mishin discloses that the klystron further comprises plural beam tubes [144], each beam carrying plural mini beams (figures 6B-7B).

With respect to claim 30, Mishin discloses that the klystron further comprises plural beam tubes [144], each beam carrying single mini beams (figures 6B-7B).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2821

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mishin et al. (U.S. Patent No. 5,811,943).

With respect to claim 27, Mishin discloses all of claimed limitations, as expressly recited in claim 26, except for specifying that the member [130] secured to a waveguide wall is ceramic. However, this different material of the member is not of patentable merits since the ceramic material can be used to maintain vacuum integrity in a non stressed portion of the klystron (see Mack, Patent No. 3,390,300, column 5, lines 10-15). Therefore, to employ the klystron of Mishin having a ceramic member secured to a waveguide wall, as claimed for effectively tuning mechanism would have been deemed obvious to a person skill in the art.

Allowable Subject Matter

8. Claims 1-25 and 31 are allowed.

9. The following is a statement of reasons for the indication of allowable subject matter:

Prior art of record fails to disclose or fairly suggest:

- A klystron amplifier comprising an annular input and output cavities disposed around the substantially circular external periphery of respective disc-shaped cavities in communication therewith, the output cavity is arranged to receive RF power from the electron beams, wherein the cavities are arranged to support one of a single resonant rotating wave in a whispering gallery mode, and a single

resonant standing wave in a whispering gallery mode, in combination with the remaining claimed limitations as claimed in independent claim 1 (claims 2-24 are allowed since they are dependent on claim 1).

- A klystron amplifier comprising an annular input and output cavities disposed around the substantially circular external periphery of respective disc-shaped cavities in communication therewith, the output cavity is arranged to receive RF power from electron beams, wherein the cavities are arranged to support one of a single resonant rotating wave in a whispering gallery mode, and a single resonant standing wave in a whispering gallery mode, in combination with the remaining claimed limitations as claimed in independent claim 31.

Citation of Relevant Prior Art

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Prior art Seong (U.S. Patent No. 5,541,391) discloses a microwave oven employing a klystron.

Prior art Begum et al. (U.S. Patent No. 5,469,022) discloses an extended interaction output circuit using modified disk-loaded waveguide.

Prior art Vaguine (U.S. Patent No. 4,024,426) discloses a standing wave linear accelerator.

Inquiry

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TUNG X. LE whose telephone number is (571)272-6010. The examiner can normally be reached on 8:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Owens can be reached on 571-272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thuy Vinh Tran/
for Le, Tung X., Examiner of Art Unit 2821
03/17/2008